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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/617,372 | 07/17/2000 | James C Bremer | 2288-021 | 8125 |

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EXAMINER

GLASS, CHRISTOPHER W

ART UNIT PAPER NUMBER

2878

DATE MAILED: 01/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,372

Applicant(s)

BREMER, JAMES C

Examiner

Christopher W. Glass

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

2. The disclosure is objected to because of the following informalities:

“If not,” which appears on lines 14 and 16 of page 7 could be replaced by “without this provision” or another similar phrase.

Page 7, line 18 contains an extraneous comma (“element,”).

“However it is preferable to change” could replace the unclear phrase “However is preferred to change” which appears on line 19 of page 11.

“Angle” is misspelled on line 22 of page 12.

A period or other proper punctuation should be inserted after “FOR” on line 23 of page 17.

On page 26, line 13, it is not clear what is meant by “Space looks.” As far as can be determined by the examiner, this term is not adequately defined in the disclosure previous to this usage.

On page 34, line 10, the sentence beginning “This yet” should be changed to “This is yet” or another grammatically correct equivalent.

Line 4 of page 36 uses “but is different” where “but different” or “different” would be grammatically appropriate. Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: claims 9 and 10 contradict the specification. In claim 9, rotation of the

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outer vertical deflection axis is constant during the inner axis scanning process. However, the specification describes the outer axis as being fixed during this period. In claim 10, rotation of the inner axis is constant during the outer axis vertical deflection. However, the specification describes the inner axis as being fixed during this period.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,672,866 to Messina.

Regarding claims 1-2: Figure 4 of Messina shows a gimbal-mounted apparatus for imaging a two-dimensional field of regard. The device comprises a telescope **26**, image sensor **28**, and an optically flat scanning mirror **34** mounted on a gimbal system which has at least one rotational axis, but “generally provides two axes of rotation” (Column 1, lines 53-54). Scanning mirror **34** scans the field of view in a series of arc patterns while maintaining a fixed relationship between the rotational direction of scan and the projection of the focal plane of telescope **26**. A well-known image acquisition procedure uses the order, for example, **6,8,10,12,14,16,18,20** as in Figure 1B. During a field-of-view scanning operation by the device of Messina, as indicated in Figure 4, “a conventional motor rotates the platform **22** at a constant rate, thereby sweeping past the image areas below **6, 8, 10, and 12** at a constant rate. As the field of view of the telescope **26** encompasses one of the target areas, the scanning mirror **34** is moved into position so that

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radiation from the target area travels through the telescope **26** and is reflected off the scanning mirror **34** into the imager **28**" (Column 5, lines 50-57).

Regarding claims 3 and 6-13: to execute the "step-and-stare" scanning approach, the scanning apparatus "is positioned to acquire (integrate and read out) an image" from one region for a period of time, rotate into the next position at the next time interval, and then acquire another image from the next region during a third time period (Column 2, lines 36-37). Platform **22** (Figure 4) sweeps the scanning mirror at a constant rate with respect to the principle inner (scanning) gimbal axis, while remaining stationary with respect to an outer vertical deflection axis. The system then moves for a brief period, at a constant rate, on the vertical deflection axis as the imaging apparatus is stepped into the next scanning position. Figure 5 and lines 7-29 of Column 6 in Messina describe these timing relationships and the procedural coordination in more detail.

Regarding claims 4-5: Electromagnetic radiation of any particular wavelength/range can be imaged, although "the most commonly employed wavelengths are in the range from the infrared through the ultraviolet" (Column 1, lines 22-24).

Claim Objections

6. Claim 1 is objected to because of the following informalities: In first section of the claim body beginning with "sweeping the field of view across," "angle" is misspelled and "so as to" does not appear to fit within the context of the sentence. Appropriate correction is required.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

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U.S. Patent No. 6,201,232 to Carlisle shows a gimbal-mounted, satellite-based imaging system with a scanning apparatus which provides "a reflected image of an area of the Earth onto...a plurality of detectors" (Column 3, lines 37-45). The device can image a large area by scanning on a first axis, repositioning the scanning mirror on another axis, and then scanning again on the first axis.

U.S. Patent No. 5,936,771 to Cooper discloses a FLIR optical configuration having scanning mirrors, the capacity to scan more than one FOV, a gimbal system, and an imaging detector.

U.S. Patent No. 4,347,530 to Stetson shows an image forming scanning mechanism comprising multiple flat scanning mirrors and a detector **30** (Figure 2).

U.S. Patent No. 5,909,302 to Guissin et al discloses a staring scanner which comprises a two-axis mirror system, focusing lenses, and a detector.

U.S. Patent No. 5,654,549 to Landecker et al shows a satellite focal plane array imager having two-axis imaging, gimbal-mounted scanning mirrors, and a focal plane array detector.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher W. Glass whose telephone number is 703-305-1980. The examiner can normally be reached 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached at 703-308-4090. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

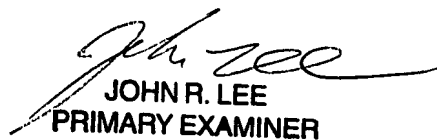
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December 21, 2001


JOHN R. LEE
PRIMARY EXAMINER